

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An electrode for a secondary electrochemical cell comprising a silicon nanofilm or one or more silicon nanoparticles, or a lithium alloy of said silicon nanofilm or said silicon nanoparticles, having a silicon oxide outer layer, wherein said nanofilm or nanoparticles are 18.5% to 70% 50% SiO₂ by weight, wherein the thickness of the silicon nanofilm or the lithium alloy thereof is not greater than 200 nm or wherein the diameters of the silicon nanoparticles or the lithium alloy thereof are not greater than 50 nm.
2. (previously presented) The electrode of claim 1, wherein the electrode comprises said silicon nanofilm that alloys with lithium.
3. (previously presented) The electrode of claim 1, wherein the lithium alloy has a theoretical stoichiometry Li_xSi, and x is at least 2.1.
- 4-5. (cancelled)
6. (previously presented) The electrode of claim 1, wherein the electrode comprises an amorphous silicon nanofilm.
7. (previously presented) The electrode of claim 1, wherein the electrode comprises said silicon nanofilm synthesized by physical vapor deposition.
- 8-25. (cancelled)
26. (previously presented) A secondary electrochemical cell comprising an anode, a cathode, and an electrolyte, wherein the anode comprises the silicon nanofilm, the silicon nanoparticles, or the lithium alloy of said silicon nanofilm or said silicon nanoparticles of claim 1.
27. (cancelled)

28. (original) The secondary electrochemical cell of claim 26, wherein the secondary electrochemical cell is a battery or an electrochemical supercapacitor.

29-35. (cancelled)

36. (previously presented) The electrode of claim 1, wherein the electrode comprises said silicon nanofilm that is a contiguous nanofilm.

37. (original) The electrode of claim 1, wherein the silicon nanofilm comprises both crystalline and amorphous domains.

38. (previously presented) The secondary electrochemical cell of claim 26, wherein said anode is a silicon nanofilm and has a reversible specific capacity of at least 1000 mAh/g.

39-46. (cancelled)

47. (original) The electrode of claim 48, wherein the silicon nanofilm comprises both crystalline and amorphous domains.

48. (previously presented) The secondary electrochemical cell of claim 26, wherein said anode comprises the silicon nanofilm or the lithium alloy thereof and has a reversible specific capacity of at least 2500 mAh/g.

49. (previously presented) The secondary electrochemical cell of claim 26, wherein said anode comprises the silicon nanofilm or the lithium alloy thereof and has an average capacity loss per cycle of 0.3% or less for cycles greater than 20.

50. (previously presented) The electrode of claim 1, wherein the electrode comprises said silicon nanofilm or the lithium alloy thereof.

51. (withdrawn) The electrode of claim 1, wherein the electrode comprises said silicon nanoparticles or the lithium alloy thereof.

52. (withdrawn) The electrode of claim 1, wherein said silicon nanoparticles alloy with lithium.

53. (previously presented) The electrode of claim 49, wherein the electrode comprises a silicon nanofilm or the lithium alloy thereof that is not greater than 100 nm thick.

54. (previously presented) The electrode of claim 1, wherein the electrode comprises a silicon nanofilm or the lithium alloy thereof, wherein said silicon nanofilm

further comprises Li_2O formed from said silicon oxide outer layer upon reaction with lithium.

55. (withdrawn) The electrode of claim 1, wherein the silicon oxide outer layer is amorphous.

56. (cancelled)

57. (cancelled)

58. (currently amended) The electrode of claim 1, wherein the electrode comprises said silicon nanoparticles, wherein each of said nanoparticles having has a crystalline domain.

59. (withdrawn) The electrode of claim 1, wherein the electrode comprises said silicon nanoparticles synthesized by inert gas condensation and ballistic consolidation.

60. (previously presented) The electrode of claim 1, wherein the electrode does not comprise carbon black.

61. (previously presented) The secondary electrochemical cell of claim 26, wherein said anode has a reversible specific capacity of at least 1000 mAh/g.

62. (previously presented) The secondary electrochemical cell of claim 26, wherein the anode comprises said silicon nanofilm or the lithium alloy thereof of claim 1.

63. (withdrawn) The secondary electrochemical cell of claim 26, wherein the anode comprises said silicon nanoparticles or the lithium alloy thereof of claim 1.